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(11) **EP 0 968 931 A1**

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
05.01.2000 Bulletin 2000/01

(51) Int. Cl.⁷: **B65D 75/60, B65D 75/46,
B65D 75/50**

(21) Application number: **98202229.5**

(22) Date of filing: **02.07.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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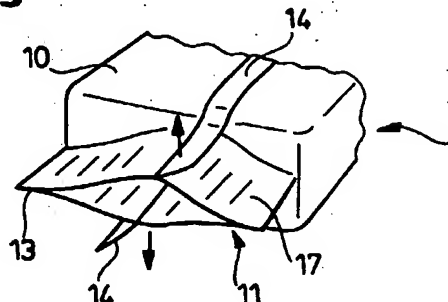
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(54) **A flexible package with easy-opening peel seal**

(57) The present invention is directed to a flow-wrapped package (10) for containing at least one unit of a consumer product, preferably at least one tablet of a consumer product, and most preferably at least one tablet of a laundry or cleaning detergent composition. Said package is made out of a non-oriented film, thus having high tear-resistant properties. A means is provided which helps an adult user to grab each side of a seal (14) and exert coordinated pulling movements for peeling off the seal and open the package. This means is achieved by providing at least two opposite sides of said flow-wrapped package with longitudinal seals that are to be unfolded and grabbed by the user.

Fig. 1



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Description

Field of the invention

[0001] The present invention relates to a package for containing tablets of detergent that comprises a child deterrent means.

Background of the invention

[0002] Flow-wrap unitary packages for containing at least one tablet of detergent are representative of the various flow-wrap packages to which the present invention can apply; such packages are typically made, for example, out of a plastic, or paper-coated film that is folded and longitudinally sealed, so as to form a tube into which at least one unit of a consumer product, for example a detergent tablet is inserted. The tube is then closed at each of its two distal extremities by means of distal seals that are perpendicular to the longitudinal seal. Furthermore, due to the packing process, the unitary packages are produced from a continuous film, and so they are separated by distal cuttings that are made in the region of the distal sealings.

[0003] Flow-wrapped packages are well-known and used in the art. One example is disclosed in international application WO 97/02993 published January 30, 1997. It discloses a tear open flow-wrapped package for packing of pool chemicals or other flowable chemicals. Such unitary flow-wrap packages when used for packing tablets of consumer products, for example detergent tablets are typically made as described above. However, they present some disadvantages. Detergent tablets generally use a composition of chemical compounds that can be dangerous if ingested. This is particularly true in the case of young children that tend to be attracted by small flow wrap unitary packages, and that are more likely to try and open the package, access the tablet and bite/ingest it. Moreover, in the case of young children, the effect of chemicals may be even more damaging for their health.

[0004] Furthermore, the unitary tubes are usually formed from a long roll of film, then filled with tablet(s). They are then sealed and cut to be separated from each other. The cuttings at the distal ends of one unitary pack usually contain indentations that are to be used by the consumer as facilitating means for opening by hand. However, such facilitating means also facilitates access to the tablet for young children, and thus increases the risk of poisoning. One means that has been applied to avoid such poisoning is the use of non-oriented packaging films. Such films are known as being difficult to tear open without using a tool, or without applying a tearing strength such that it shall be applied only by an adult.

[0005] However, the package while being difficult to open by children, must be user-friendly, and thus, there is a need for a flow-wrap package for containing dangerous products that is made out of a non-oriented film, so

as to discourage children from opening it by tearing, but that is still easily openable by adults. Some packages are known in the art which are made out of a non-oriented film (i.e., a film with tear-resistant properties), said packages being opened only by peeling off the sealings in the extremities of the package.

[0006] Such packages however present some disadvantages. The opening by peeling off the seals requires that the user grabs two opposite sides of the package that are fixed together by the seal, and exert coordinated pulling movements, so as to peel the seal off and open the package. However, the application of such coordinated movements can be difficult to apply by some adults, especially when the user suffers from hand-disease, such as arthritis for example.

[0007] It is therefore one main object of the present invention to provide the user with a flow wrap package for containing units of consumer products, which is to be opened before use of the contents, which is made out of a non-oriented film with tear-resistant properties, and which is to be opened by peeling off one sealed extremity, said package being constructed so as to facilitate the peeling off operation.

Summary of the invention

[0008] The present invention is directed to a flow-wrapped package for containing at least one unit of a consumer product, preferably at least one tablet of a consumer product, and most preferably at least one tablet of a laundry or cleaning detergent composition. Said package is made out of a non-oriented film, thus having high tear-resistant properties. A means is provided which helps an adult user to grab each side of a seal and exert coordinated pulling movements for peeling off the seal and open the package. This means is achieved by providing at least two opposite sides of said flow-wrapped package with longitudinal seals that are to be unfolded and grabbed by the user.

Brief description of the drawings

[0009] The invention will now be explained in detail with reference to the following accompanying figures which are referred to as:

- Figure 1: which is an enlarged perspective view showing a distal extremity of a flow-wrapped package according to the invention, which shows how the user grabs the longitudinal seals of two opposite sides, once they are unfolded, for peeling off the seal in the open position.
- Figure 2: which is a perspective view showing a parallelepipedic flow-wrapped package according to the invention, in the closed position, with longitudinal sealings which are folded.
- Figure 3: which is a perspective view showing a tetraedric flow-wrapped package according to the

invention, in the closed position, with longitudinal sealings which are folded.

- Figure 4: which is a general perspective view of a manufacturing line for making parallelepipedic flow-wrapped packages according to the invention, out of a single piece of film which is folded into a tube, filled and sealed.
- Figure 5: which is a general perspective view of a manufacturing line for making parallelepipedic flow-wrapped packages according to the invention, out of two films which are sealed into a tube, filled and sealed closed.

Detailed description of the invention

[0010] Now referring to figure 2, a package (1) is shown that comprises a package body (10) and at least two distal ends (11). The package is made out of any suitable material with high tear-resistant properties. It can be for example coated paper, metal, or plastic. It can be made out of one single material or out of a combination of several materials. Preferably, the package is made out of a non-oriented thermoplastic film, such as for example non-oriented polyethylene or polypropylene. A non oriented film is defined as a film which exhibits a tear propagation force above 3 Newton where the tear propagation force is measured with the *Trouser* tear method described in ISO 6383 (published in 1983). The package can also be made out of a laminate. In any case, the packaging material must be suitable for forming a peel seal, that is to say, it must be sealable on itself and form a fusion seal which is peelable.

[0011] The package can have any size that is suitable for containing at least one unit of a consumer product that is considered as dangerous, such as for example detergent compositions, pesticides, insecticides, or medicines. Said unit is either non particulate solids such as tablets or briquettes or bars, or under the form of a powder or granulates, or even under a liquid form. In one preferred embodiment of the present invention, the package is intended to be used for containing at least one detergent tablet (2) for use in laundry or dish-washing purposes. Such tablets (2) are usually considered as dangerous consumer products, if ingested. Said tablet (2) may have any suitable shape, but is preferably symmetrical so as to ensure complete and uniform dissolution in the wash liquor during the wash cycle. The detergent may be of any suitable composition, and may comprise for example surfactants, suds suppressors, bleaches, builders, enzymes, fillers, and perfumes.

[0012] A unit of a consumer product, such as a unit of detergent product is typically defined as a dosed quantity of said detergent suitable for use during one wash cycle. For example, when using an automatic washing machine, for dish or laundry, the user will put one tablet inside the washing machine that will dissolve during the wash cycle, with action onto the dishes or the clothes, for example. However, more than one unit may be used

for one wash cycle, for example in extreme dirtiness of items to wash, amount of items to wash, or hardness of water.

[0013] The overall shape of the package (1) may vary, for example the package (1) can be flat, when the distal sealed extremities (11) are parallel (i.e. located along the same plane), as shown in figure 2. In such a case of a flat package comprising substantially two sides, the package, once filled and closed, may have a different shape that is determined by the shape of the contents, for example a substantially parallelepipedic shape, as shown in figure 2. Another example of shape is shown in figure 3: the package (1) is tetraedric, when the distal sealed extremities (11) are located in perpendicular planes. In the latter case, the package substantially comprises four sides opposing each other by pairs.

[0014] The package (1) comprises at least two longitudinal sealings (14), each being located on one of at least two sides of the package (1), as shown for example in figure 2. Said at least two sides are preferably sides that are opposite by pairs. The position of said longitudinal sealings across one side of the package (1) may vary. Preferably, each longitudinal seal is substantially centered across the width of one side of the package (1), so that they are substantially aligned in a plane that is perpendicular to the sides that contain said longitudinal sealings. The width of said longitudinal seals (14) may vary, but is preferably not less than 5mm, and more preferably not less than 10mm. The longitudinal seals (14) are preferably flat-folded onto the surface of the package (1), as shown in figures 2 and 3. During the opening operation, the user shall unfold said longitudinal seals (14), as shown in figure 1, so as to grab and pull them in opposite directions to peel the distal seal (17) off.

[0015] The package further features distal sealings (17) located at the distal ends (11) of the package (1). The distal sealed ends (11) of the package (1) also comprise distal cuttings that are made during the manufacturing process (see description below). Said distal cuttings (13) can have several shapes, for example they can comprise indentations, as shown in figures 4 and 5. Preferably, and to prevent tearing of the packaging film, the distal cuttings (13) are rectilinear cuttings, as shown in figures 1, 2 or 3. Such rectilinear cuttings (13) prevent accidental opening by tearing the film, since no weak points along the border of the film could be used as a pre-cut. Further, rectilinear cuttings (13) in combination with tear-resistant non-oriented film will orientate the user in peeling off one of the distal seals (17). Thus, the opening of the package requires coordinated movements for grabbing opposed longitudinal seals, pulling them in opposite directions (see figure 1), and peeling off the seal opened. Such coordinated movements are to be applied by adults, but it has been shown that such coordinated movements are almost impossible to make for a young child. Thus, the package of the present invention is child-deterrent, while being constructed so

that opening by peeling one distal seal is easy to perform by adults.

[0016] As previously described, the package is made out of a film that is closed by sealing, and preferably a flow-wrapped package. A description of two examples of a process for making a flow-wrap package according to the present invention will now be made, with reference to figures 4 and 5.

In a first embodiment of the present invention, the package is made out of a single piece of film. The steps of such a process are, in order:

- (i) forming a gutter of film (12) by folding one single piece of film (see figure 4) by the means of folding elements (19) such as for example folding rods or a folding gutter,
- (ii) making a primary longitudinal seal (14A) in the portion of the film where it is folded (see figure 4),
- (iii) filling the gutter of film (12) with a dose, for example a tablet (2) of the product to contain,
- (iv) forming a tube (15) by making a secondary longitudinal seal (14B) on the gutter of film (12),
- (v) closing the tube by making distal seals at intervals along the tube (15), and cutting into unitary packages, using sealing/cutting jaws (18), and folding the primary (14A) and secondary (14B) longitudinal seals so that they are flat-positioned onto the surface of the package, as it is shown in figures 2 and 3.

[0017] In a second embodiment of the present invention shown in figure 5, the package is made out of two separate pieces of film. The steps of such a process are, in order:

- (i) forming a gutter of film (12) by making a primary longitudinal seal (14A) along two pieces of film which are joined together (see figure 5). Said primary longitudinal seal (14A) is performed by using elements for making a continuous seal, such as for example rotating sealing rollers (16),
- (ii) filling the gutter of film (12) with a dose, for example a tablet (2) of the product to contain,
- (iii) forming a tube (15) by making a secondary longitudinal seal (14B) on the gutter of film (12),
- (iv) closing the tube (15) by making distal seals (17) at intervals along the tube (15), and cutting into unitary packages (1), using sealing/cutting jaws (18), and folding the primary (14A) and secondary (14B) longitudinal seals so that they are flat-positioned onto the surface of the package (1).

[0018] It is obvious that variations of these examples of processes can be applied, depending for example on the nature of the contents. For example, powders, or liquids are most preferably filled in a tube that is vertically formed, filled and sealed, while solid contents is generally fed in a tube that is vertically formed, filled, and

sealed.

[0019] The sealings either the longitudinal ones (14), or the distal ones (17) can be made by means of hot sealing, or by cold sealing or any other suitable sealing process, such as for example induction sealing or ultrasonic sealing (in case the nature of the packaging material allows such process). Cold sealing is performed by using the properties of the packaging film to stick onto itself, or by using a cold glue with excellent tacking properties, so that no heat is required for the sealing, but only pressure applied by the sealing jaws. Preferably in the present invention, the sealings of the package are hot-sealings. Both cold and hot sealing processes are well-known in the art.

[0020] In the case the packaging material is made out of several layers, for example a thermoplastic laminated material, and if the inner and outer layers are not of the same nature, the surfaces of material to be applied onto each other and sealed shall be chosen so as to perform a seal of good quality. Any person skilled in the art shall be able to select compatible materials so as to perform a correct seal. Depending on the chemical nature of the inner/outer layers of a laminate, the seal shall be made between inner and outer layers, between two inner layers, or between two outer layers.

[0021] It is possible to adapt the quality of a sealing, depending on the use that is to be made of said sealing. Particularly, in the preferred embodiment of the present invention where the package comprises hot seals, variations shall be dosed and applied during the sealing operation, by modifying for example the time, temperature or pressure of the sealing rollers (16) or sealing jaws (18) onto the film. The surface of the sealings shall also be adapted as well. In the package (1) according to the present invention, the sealings shall preferably be made such that peeling the seal off, requires tearing strength and movements coordination that cannot be applied by a young child, but only by an adult. It is not the purpose of the present description to give the appropriate parameters for achieving such sealings, since such parameters can be determined and applied by a person skilled in the art.

Claims

1. A packaged consumer product, the package being a flow-wrapped film which comprises at least two sides, the package being closed at its extremities by distal seals, characterized in that the package further comprises at least two longitudinal seals which are located on different sides of the package.
2. A packaged consumer product according to claim 1, wherein said package comprises at least one sealed extremity which is openable by peeling the seal off.
3. A packaged consumer product according to any of

the preceding claims, wherein said package is made out of a non-oriented thermoplastic film.

4. A packaged consumer product according to any of the preceding claims, wherein said package is made out of one single piece of film that is folded and sealed so as to form a closed package. 5
5. A packaged consumer product according to claims 1 to 3, wherein said package is made out of two films which are assembled onto each other and sealed so as to form a closed package. 10
6. A packaged consumer product according to any of the preceding claims, wherein said package comprises rectilinear cut edges. 15
7. A packaged consumer product according to claims 1 to 6, wherein said package has a tetraedrical shape and comprises two distal seals which are substantially perpendicular to each other. 20
8. A packaged consumer product according to claims 1 to 6, wherein said package is a flat package comprising two sides substantially parallel to each other, and two distal seals which are substantially parallel to each other. 25
9. A packaged consumer product according to any of the preceding claims, wherein the distal seals are substantially perpendicular to the longitudinal seals. 30
10. A packaged consumer product according to any of the preceding claims, wherein said consumer product is a unit of a dangerous consumer product. 35
11. A packaged consumer product according to any of the preceding claims, wherein said unit of consumer product is a detergent tablet. 40

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Fig. 1

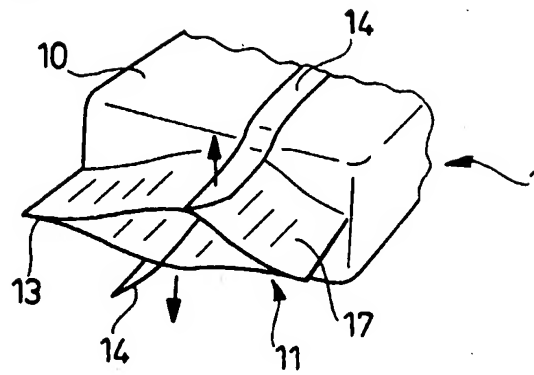


Fig. 2

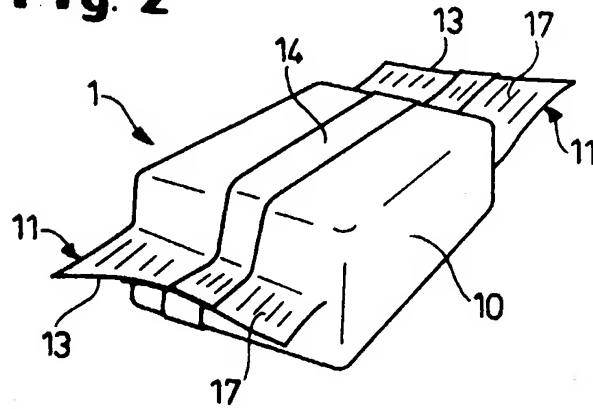


Fig. 3

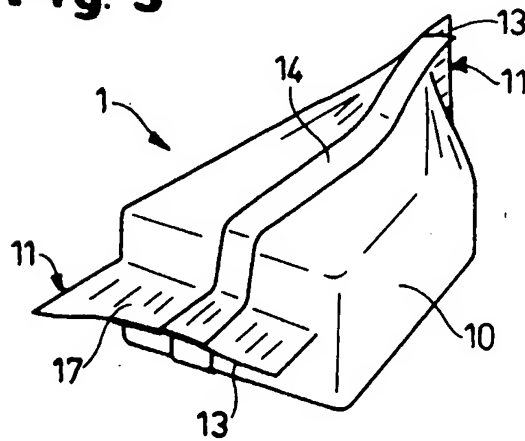


Fig. 4

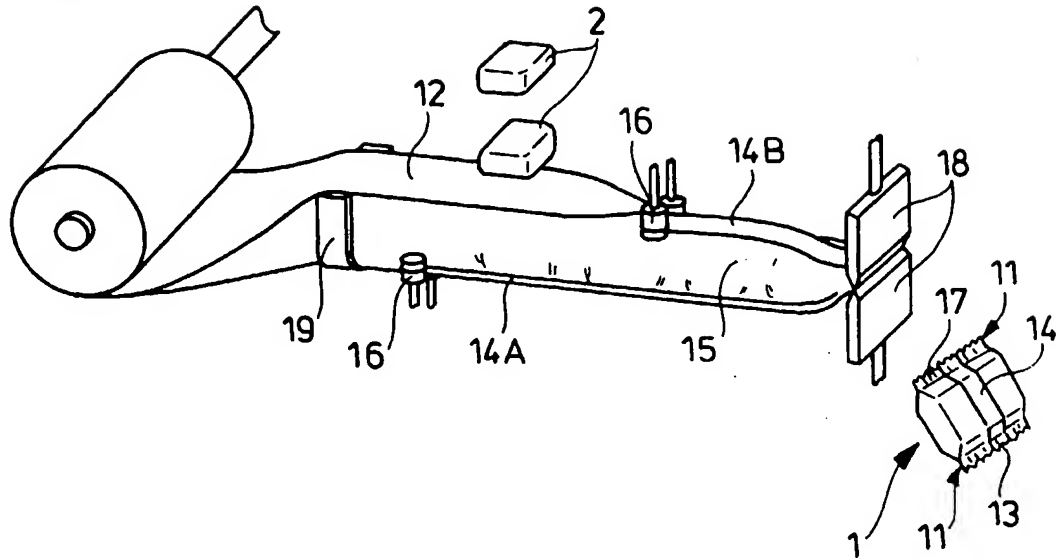
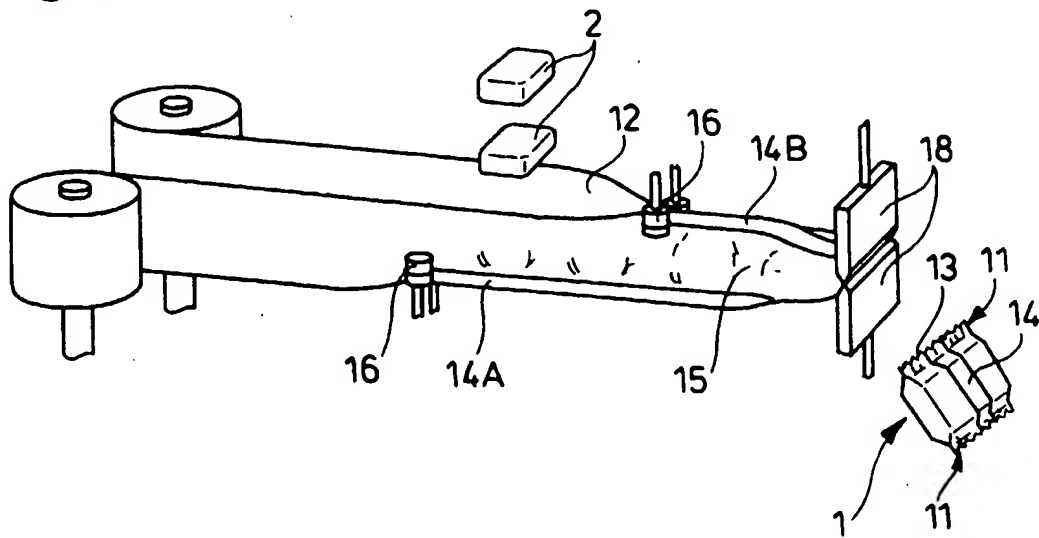


Fig. 5





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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 2229

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.C1.6)
X A	WO 91 13005 A (TEICH AG) 5 September 1991 * abstract; figures *	1-5,8,9	B65D75/60 B65D75/46 B65D75/50
A	US 3 734 388 A (HOPKINS A) 22 May 1973 * abstract; figures *	1-4,6,7,9	
			TECHNICAL FIELDS SEARCHED (Int.C1.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 8 December 1998	Examiner SERRANO GALARRAGA, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P4/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 20 2229

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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08-12-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9113005 A	05-09-1991	AT 108402 T DE 59102159 D EP 0469147 A	15-07-1994 18-08-1994 05-02-1992
US 3734388 A	22-05-1973	NONE	



1. The first part of the document is a list of names and addresses. The names are: John Doe, Jane Smith, and Bob Johnson. The addresses are: 123 Main St, 456 Elm St, and 789 Oak St.